



Attorney Docket No. P108910-09024

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Musso et al

Serial No. 09/081,294

Filed: August 16 1999

For: FOAMING COMPOSITIONS

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) Examiner: R. SERGENT

) Art Unit: 1711

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DECLARATION OF DR. GIAMPIERO BASILE

PURSUANT TO 37 C.F.R. § 1.132

Hon. Commissioner of Patents and Trademarks

Washington, D.C. 20231

Sir:

I, GIAMPIERO BASILE, do hereby declare that:

1. I am one of the inventors of the invention claimed in the above-identified application Serial No. 09/375,239 ("Application").
2. I received a Degree in Chemistry from the University of Genova in 1966.
3. I have been working in Ausimont's Research & Development Center since 1967 in the field of inorganic and organic chemistry.
4. I am aware of the present Application as well as the obje-

ctions raised in the Office Action dated 10/29/1999, based on Klug, USP 5,605,882 or USP 5,779,931 or USP 5,648,016;

5. In order to show that said references do not teach or make obvious the process of the invention, the following experiment was run under my supervision.

Eight formulations for polyurethane rigid foams have been performed, according to the following procedure:

In a polyethylene cylindrical container (diameter 12 cm, height 18 cm) 100 g of polyol polyether containing silicone surfactant (1.5 %w), 2.6 g of water, 2.5 g of N,N-dimethyl cyclohexylamine, and the required amount of blowing agent were introduced. Said amount was calculated in order to have the same number of moles of the blowing agent in each of the compositions to be tested.

This made possible a comparison of cell size distribution (homogeneity) and apparent density of the foams obtained from each composition tested. The polyol polyether added had a number of hydroxyl equal to 500 mg of KOH equiv/g, the aminic catalyst a number of hydroxyl equal to 500 mg of KOH equiv/g.

The content of the polyethylene cylindrical container was mixed with a mechanical stirrer for one minute at the rate of 1900 rpm, then 170 g of isocyanate was added and stirring was continued at the same speed for 15 seconds.

The isocyanate used (DESMODUR® 44V20 by BAYER) was a polymeric methylenediphenylisocyanate (PMDI) having a number of hydroxyl equal to 438 mg of KOH equiv/g (% weight of NCO = 32.79 and a number index of 1.1). The crosslinking reaction was allowed to complete so that the foams could freely expand.

From the central part of each of the obtained foams a portion was drawn for visual inspection of the cell size distribution (homogeneity) and for the experimental measurement of apparent density. Results are reported in Table 1. As reference example, example γ of Table 14 of the Specification has been reported.

The blowing agents used for the polyurethane foam preparation in the examples of the present Declaration have been taken from the list of azeotropic or azeotropic-like compositions reported in columns 10 and 11 of US 5,605,882 (Klug), and were the following ones for each of the examples of the Declaration:

| Ex. | Refrigerants mixture used | Chemical Formulas of the refrigerants of the mixture | molar ratio |
|-----|---------------------------|--|-------------|
| | Number designation | | |
| 1 | 134E/HFC236ea | $\text{CHF}_2\text{OCHF}_2/\text{CF}_3\text{CHFCHF}_2$ | 50/50 |
| 2 | 227eaE/HFC134a | $\text{CF}_3\text{OCHFCF}_3/\text{CH}_2\text{FCF}_3$ | 60/40 |
| 3 | 143aE/HFC227ea | $\text{CH}_3\text{OCF}_3/\text{CF}_3\text{CHFCF}_3$ | 1/99 |
| 4 | 218E/HFC152a | $\text{CF}_3\text{OCF}_2\text{CF}_3/\text{CH}_3\text{CHF}_2$ | 50/50 |
| 5 | 236faE/HFC32 | $\text{CF}_3\text{OCH}_2\text{CF}_3/\text{CH}_2\text{F}_2$ | 55/45 |
| 6 | 125E/HFC32 | $\text{CHF}_2\text{OCF}_3/\text{CH}_2\text{F}_2$ | 70/30 |
| 7 | 116E/HFC125 | $\text{CF}_3\text{OCF}_3/\text{CHF}_2\text{CF}_3$ | 20/80 |

The compositions of the foam formulations including the above blowing agents are given in Table 1.

In Table 2 are reported the physical characteristics of the foams obtained according to the compositions of Table 1, together with those of Ex. γ of the Application and of those of CFC 11, both taken from page 33, Table 14 and page 33 of the Speci-

fication.

6. All statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willfull false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willfull false statements may jeopardize the validity of the application or any patent or registration issuing thereon.

Date: November 10 2000

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Table 1

Compositions of the foam formulations used in the experiments of the Declaration. Figures are expressed in grams.

Table 2

| Physical characteristics of the foams obtained according to the compositions of Table 1. | | Foam Morphology |
|--|---|--|
| Example | Foam Apparent Density Kg/m ³ | |
| Ex. 1 | 40 | Foam completely expanded, too much coarse cell size distribution (non homogeneous morphology). |
| Ex. 2 | 80 | Foam completely expanded, too much coarse cell size distribution (non homogeneous morphology). |
| Ex. 3 | >200 | Foam not completely expanded, too much coarse cell size distribution |
| Ex. 4 | >200 | Foam not completely expanded, too much coarse cell size distribution |
| Ex. 5 | >200 | Foam not completely expanded, too much coarse cell size distribution |
| Ex. 6 | - | The composition of this example did not expand. |
| Ex. 7 | - | The composition of this example did not expand. |
| Ex. γ^* | 30 | Foam appearance : good; good homogeneity |
| CFC 11* | 30 | Foam appearance : good; good homogeneity |

* ref. the specification, page 33, last row of Table 14, page 34, lines 6-7